

Heart Failure

STEM CELL THERAPY IN CHRONIC ISCHEMIC CARDIOMYOPATHY: A META-ANALYSIS

ACC Moderated Poster Contributions
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Background: The efficacy of bone marrow stem cell therapy (BMSCT) and its route of administration (intramyocardial [IM] vs. intracoronary [IC]) in chronic ischemic cardiomyopathy remain uncertain.

Methods: We conducted a meta-analysis of randomized clinical trials of BMSCT for chronic ischemic heart disease with LV systolic dysfunction where left ventricular ejection fraction (LVEF), left ventricular end systolic volume (LVESV), left ventricular end diastolic volume (LVEDV) were reported. The search included PUBMED, MEDLINE, EMBASE, CINAHL and Cochrane library through October 2011.

Results: Of 226 reports identified, 9 RCTs (n = 467 patients; average LVEF at baseline $32 \pm 7\%$) were included. Based on a random effects model, BMSCT improved LVEF by 4.27% (95% CI 2.13 to 6.41, p = 0.0001) at 6 months (see Figure), with greater improvement seen in IM vs. IC infusion (5.43% [95% CI 3.65 to 7.21], p < 0.0001 vs. 0.17% [95% CI -5.32 to 5.66], p=NS). Overall, LVESV decreased by -18.1 mL (95% CI -34.9 to -1.25, p = 0.04) and LVEDV decreased by -16.42 mL (95% CI -30.80 to -2.04, p=0.03).

Conclusions: Stem cell therapy improves LVEF and favorably remodels the heart in chronic ischemic cardiomyopathy. Based on current limited data, IM injection may be superior to IC infusion in patients with LV systolic dysfunction.

Figure 1: Forest plot of change in LVEF between baseline and follow-up for BMSCT via IC and IM approach.

